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# Shared medical appointments for children and adolescents with type 1 diabetes: perspectives and experiences of patients, parents, and health care providers

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**Aims:** This study examined the perspectives and experiences of patients, parents, and health care providers with shared medical appointments (SMAs) for children and adolescents with type 1 diabetes. Specifically studied were reasons to attend SMAs, perceived differences between SMAs and individual medical appointments, patient-valued health care aspects, and providers' performance.

**Methods:** Fifty-two patients, 8 parents, and 36 health care providers participated. Perspectives on SMAs were assessed with questionnaires and an online focus group. Data was analyzed using descriptive statistics.

**Results:** Health care providers had work-related reasons to conduct SMAs. Patients and parents primarily valued the presence of other patients during SMAs. According to health care providers and patients, a higher or similar amount of information was discussed during SMAs as opposed to individual appointments, respectively. SMAs did contain more discussion about lifestyle. Most consultation aspects considered important by the patients were performed by their health care providers. Patient satisfaction with SMAs did tend to decrease after 3 months. Parents were somewhat more critical about SMAs.

**Conclusions:** Health care providers, patients, and parents were generally positive about SMAs. Future studies should examine the impact of the presence of parents and different health care providers during SMAs, and that of differences in patient age, type of insulin treatment, and disease-related problems.

**Keywords:** child, adolescent, diabetes mellitus type 1, pediatrics, shared medical appointment

## Introduction

Diabetes is one of the most common childhood chronic diseases in the Netherlands. In every 1000 children, 2.2 children have diabetes and 98% suffer from type 1 diabetes.<sup>1</sup> In order to prevent the development and progression of chronic complications, diabetics need to maintain their glucose level as close as possible to normal.<sup>2</sup> To do so, appropriate self-management is essential<sup>3</sup> supervised by a diabetes team and the patient's parents.<sup>4</sup> Parental involvement appears to be related to a child's adequate blood glucose monitoring.<sup>5,6</sup> When reaching adolescence, however, children have to learn to manage their diabetes independently.<sup>7</sup> Within this context, parents could also gradually stop accompanying their child to control visits, to allow the child's perspective to be heard better.<sup>8</sup> A shared medical appointment (SMA) may support this process.

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SMA were introduced in the United States in 1996 to improve the quality of care as well as patients' self-management skills.<sup>9,10</sup> During an SMA, a multidisciplinary team provides medical care to a homogenous group of patients and this allows plenty of time to go deeper into specific topics.<sup>11</sup> During SMAs, patients have the opportunity to learn from and share experiences with each other,<sup>12</sup> which may make them feel less isolated with their chronic disease.<sup>9</sup> An SMA can be provided as a replacement visit or in addition to traditional individual control visits.<sup>13</sup> SMAs have shown to increase quality and outcomes of care, patient education, compliance and patient and provider satisfaction. Besides, more attention appears to be given to psychosocial needs and lifestyle behavior.<sup>14</sup> In case of pediatric-patients, parents usually accompany their children.

In type 2 diabetes, SMAs seem to lead to lower glycosylated hemoglobin ( $HbA_{1c}$ ) levels, improved self-care and adherence to guidelines, better blood glucose monitoring, higher self-efficacy, quality of life, diabetes knowledge, and satisfaction, and even to reduced cardiovascular risks.<sup>15–19</sup> One study showed that SMAs also led to higher health-related quality of life in older adolescents with type 1 diabetes.<sup>20</sup> Besides, compared to individual visits, SMAs appear to cover more diabetes-related topics<sup>21</sup> and education.<sup>22</sup> Apparently, patients with diabetes benefit from SMAs in different ways.<sup>21</sup> However, findings usually come from small-scaled studies and do not often incorporate the perspective of parents. Also, the evidence from existing literature on this topic is small. The objective of the present study was to investigate the perspectives and experiences with SMAs in different participants, ie, patients, their parents, and their health care providers. To get a comprehensive view on their opinions, these were studied using different methodological approaches. This triangulation made it possible to compare different perspectives,<sup>23</sup> and to elicit more complete findings<sup>24</sup> and a better understanding of current SMA practices.<sup>25</sup>

## Methods

### Participants

Seven Dutch hospitals agreed to participate in SMAs. A total of nine SMAs took place (two hospitals conducted two SMAs). Five SMAs were conducted in August and September 2008, as part of a previous study by NIVEL<sup>21</sup> and four SMAs took place between September 2010 and December 2011 as part of the present study by NIVEL. The two studies had identical study designs.<sup>12,21</sup> Seven SMAs were based on the same intervention protocol,<sup>11</sup> and two other SMAs focused specifically on alcohol use. During the

seven protocolized SMAs the health care providers discussed patients' medical progression and related questions one by one. About the relationship between alcohol and diabetes, professionals provided mainly advice and education. The intervention protocol did not change during the two conducted studies.<sup>11</sup>

Hospitals were located in the west, east and south part of the Netherlands. The SMAs were conducted by a total of 36 health care providers. Each health care team consisted of three to six health care providers such as pediatricians, diabetes nurses, and psychologists. One of these providers was also the moderator during an SMA (see Appendix 1).

Patients were included if they had type 1 diabetes, the ability to understand and speak Dutch, were aged between 6 and 18 years and were scheduled to have an SMA. One or two parents ( $n = 41$ ) per patient were present in six SMAs (range 4 to 11 parents), regardless of the patients' age. However, patients under the age of 12 years ( $n = 14$ ) were always accompanied by their parent(s) during an SMA.

Parents who had previously attended an SMA were asked to participate in an online focus group (OFG), by means of an information letter with consent form by post or by email, to exchange their experiences with SMAs with other parents. Nine parents wanted to participate of which eight (seven mothers, one father) actually did.

## Procedure SMAs

SMAs are part of usual care in the participating hospitals. Researchers were not involved in scheduling this type of patient care; they only asked participating patients and providers to fill in questionnaires and to grant them permission to have their SMA recorded on tape.

All SMAs were held in an outpatient setting. Depending on the hospital's current policy, the SMA could either be a replacement of a routine, individual 3-monthly follow-up visit, or an additional visit to the pediatric ward. SMAs were divided into sessions for two different age groups: 6–12 and 12–18 years. Some groups consisted of patients aged between 12 to 15 years and between 15 to 18 years, because of the number of patients willing to participate. Children and adolescents were given a choice by their pediatrician to either participate in the SMA or not. Unfortunately, we have no information about the number of no-shows. Patient sex, diabetes duration and/or current problems of participants were not issues in the construction of SMA groups.

Patients and their parents were sent a letter and informed consent form before attending an SMA to inform them about the study's purpose and requirements. Before and after attending an SMA, and at 3-month follow-up, patients were asked to fill in a questionnaire. In case of young children (<12 years,  $n = 14$ ), the child filled in the questionnaires together with a parent, who had also attended the SMA. A total of 52 children and adolescents attended an SMA and filled in the baseline questionnaire. After the SMA, 46 patients filled in the post-visit questionnaire, and 29 patients at the 3-month follow-up (see Table 1).

Health care providers also completed a questionnaire after the SMA ( $n = 35$ ). We used identical questionnaires for the patients and health care providers as in the previous study.<sup>12,21</sup>

Our research complied with the Helsinki Declaration. All patients, parents, and health care providers signed an informed consent form before participation. The studies were carried out according to Dutch privacy legislation. The privacy regulation was approved by the Dutch Data Protection Authority. According to Dutch legislation, approval by a medical ethics committee was not required for this study.

## Online focus group

An OFG was conducted to investigate the parents' perspectives.<sup>26</sup> During an OFG, a small number of people are asked to discuss a topic and to express their views, allowing for frequent and long written reactions and equal contributions.<sup>27</sup> An OFG is useful for assessing data from people that live far away from each other,<sup>28</sup> or who would not participate in a traditional face-to-face focus group.<sup>29</sup> In this study, each

of the eight participating parents received a login name and password enabling them to access the Website of the OFG anonymously during one week. The OFG was held asynchronously, ie, the parents were free to log in at any time and any place. Parents could post their comments and opinions, and read and react to the comments of other parents. They were asked to react to five statements: (1) *My child can obtain more knowledge about coping with diabetes by hearing the experiences of other patients*; (2) *As a parent, I always want to be present during an SMA of my child*; (3) *During an SMA, many different health care providers should be present, and one of these must be a pediatrician*; (4) *An SMA must replace an individual visit and not be an extra visit next to the regular individual appointments*; (5) *An SMA should become a mandatory visit in diabetes care*. Every morning during the first five days, one of these statements was added to the Website. During the sixth and seventh day, the OFG remained open for reactions. The parents were instructed not to mention any names for anonymity purposes. During the OFG, the researchers kept track of each posting. Afterwards, all reactions were categorized in the same topics to which patients and health care providers reacted in the questionnaires.

## Questionnaires

### Reasons for conducting or attending SMAs

Health care providers and patients were asked (at baseline) to indicate why they wanted to attend an SMA by ticking any of the reasons derived from the previous study.<sup>12,21</sup>

### Opinions about SMAs relative to individual visits

To examine differences in receiving information during an SMA and an individual visit, patients completed four 5-point Likert scaled items, ranging from 1 'much less' to 5 'much more'. The health care providers completed the same items plus two additional ones after the SMA (post-visit questionnaires).

### Perceived quality of SMAs

Patients and health care providers completed the Quality Of care Through patients' Eyes (QUOTE) scale before (baseline) and after the SMA (post-visit questionnaire), to assess the issues that participants considered important and performed, respectively.<sup>30,31</sup> QUOTE items are scored on a 4-point scale, from 1 'not important/no' to 4 'very important/yes'. Researchers were present when patients filled in the questionnaires to give, if necessary, additional information or explanation.

**Table 1** Participants and response rates

Instruments used	Present/completed by	n
Baseline questionnaire	Children (8–12 years)	14
	Adolescents (12–18 years)	36
	Children or adolescents*	2
Nine shared medical appointments (SMAs)	Children (8–12 years)	14
	Adolescents (12–18 years)	36
	Children or adolescents*	2
Six (out of nine) SMAs	Health care providers	36
	Parents	41
	Children (8–12 years)	13
Post-questionnaire	Adolescents (12–18 years)	31
	Children or adolescents*	2
	Health care providers	35
Online focus group (OFG)	Parents	8
Questionnaire after 3 months	Children (8–12 years)	6
	Adolescents (12–18 years)	23

**Note:** \*Two children/adolescents completed the baseline and post-questionnaire (and attended an SMA), but did not fill in their birthday or age.

## Appreciation of SMAs

Patients and health care providers were asked to indicate on a 5-point Likert scale how satisfied they were with the SMA (post-visit questionnaire and after 3 months), with items from 1 'not satisfied at all' to 5 'completely satisfied'. Patients were also asked to express their opinion about nine 5-point Likert scale statements regarding SMAs, ranging from 'completely disagree' to 'totally agree'.

## Analysis

Data were analyzed using SPSS software (v. 18; SPSS Inc, Chicago, IL). With the use of descriptive statistics, patients' and health care providers' perspectives on SMA for children and adolescents with type 1 diabetes were analyzed. Differences between measurements (eg, satisfaction) were tested using a paired *t*-test.

## Results

### Reasons for participation

#### Patients' reasons

Participating patients (26 boys, 26 girls) were between 8 and 18 years old (mean [*M*] = 13.08, standard deviation [*SD*] = 2.51). All had Dutch nationality (see Table 1). The most often mentioned reason for attending an SMA were patients' expectation to share experiences with (*n* = 36) and to learn from fellow patients (*n* = 30). Fifteen patients mentioned that they attended an SMA to receive more information about the disease and treatment and two patients wanted to spend more time with the health care providers. Ten patients presented other reasons, such as: '*they asked us*', '*it is planned as my quarterly consultation*', and '*to make friends who have similar experiences*'.

#### Health care providers' reasons

Most health care providers (*n* = 32) indicated that they conduct an SMA for a variation in their work, to work in a different way with colleagues (*n* = 24), and to learn something new (*n* = 20). Fourteen providers mentioned other reasons such as wanting to learn from patients (*n* = 5). According to the providers, patients react more openly during SMAs and thereby facilitate this learning process. Other examples of answers to the open question were: '*to learn from each other*', '*to help more patients in less time*', and '*to improve the quality of care*'.

#### Parents' reasons

During the OFG, parents (75%) indicated that they stimulate their children to participate in an SMA, even when they

show some resistance. With such an experience, children can determine for themselves whether or not SMAs comply with their needs and whether they want to attend future SMAs. According to the parents (37.5%), SMAs are only useful when children act openly and are committed, not when SMAs are seen as unpleasant. Children should determine for themselves if they want to share their experiences with other children. Most parents (87.5%) do not want SMAs to become additional visits. As one parent stated: "*The less hospital visits, the better*". They do consider SMAs valuable as a way to improve their child's understanding of potential future problems or complications. Furthermore, parents (37.5%) want their child to attend SMAs in order to enhance their relationship with other patients with type 1 diabetes. The absence of parents during SMAs allows children to interact with each other without any interference from parents. One parent said: "*An SMA provides privacy for children, and they will not talk openly about particular topics when (other) parents are present*". Most parents (75%) indicated that they do not accompany their children to an SMA, like they do to an individual visit. Although an SMA is seen as important for meeting peers, parents (25%) mentioned that SMAs may be more useful for children aged 10 years or older, because these children have developed a better empathic ability. For adolescents, an SMA can be seen as a step to independence. As one parent reacted: "*My influence during medical visits is gradually decreasing. This is very important*".

## SMAs versus individual visits

### According to patients and health care providers

Most participants felt that children and adolescents with type 1 diabetes receive at least as much information about diabetes and its treatment during an SMA as during an individual medical appointment (Table 2). Forty-two percent of the patients and 76% of the health care providers had the opinion that more information about lifestyle is discussed during an SMA. However, 46.7% of the patients thought that the amount of information provided about lifestyle was similar to that in an individual visit.

### According to parents

During the OFG, parents (50%) mentioned that their children's knowledge increases during SMAs by learning from other children. This is especially the case for younger or recently diagnosed children, because peers can teach each other skills regarding their diabetes management. Nevertheless, parents do appreciate some aspects of individual medical visits more.



**Table 2** Perspectives on shared medical appointments as opposed to individual visits

	(Much) less		Equal		(Much) more	
	n	%	n	%	n	%
<b>Health care providers</b>						
Information about lifestyle	3	12.0	3	12.0	19	76.0
Information about diabetes	3	11.5	8	30.8	15	57.6
Information about treatment	4	15.4	8	30.8	14	53.8
Attention for each patient	5	20.0	7	28.0	13	52.0
Information about insulin	8	30.8	10	38.5	8	30.8
Time per patient	14	53.8	8	30.8	4	15.3
<b>Patients</b>						
Information about lifestyle	5	11.1	21	46.7	19	42.2
Information about diabetes	8	17.8	24	53.3	13	28.9
Information about treatment	9	20.0	27	60.0	9	20.0
Information about insulin	12	26.7	27	60.0	6	13.3

One parent for instance believes that his/her child receives more feedback from health care providers during an individual visit. Parents (25%) also value the privacy of an individual visit, particularly when discussing personal problems. According to an equal number of parents, the topics discussed during an individual appointment are more tailored to the individual patient. If their child experiences unusual problems, these problems are more easily addressed during an individual appointment. It is important to parents that their children receive sufficient individual attention from health care providers during an SMA. To some parents (25%), it does not matter how their child receives information about diabetes, as long as (s)he does.

## Importance and performance of consultation aspects

### Patients' needs and health care providers' performance

Before attending the SMA, patients had indicated how important they considered nine aspects of health care providers' consulting behavior. After the SMA, the patients rated the degree to which each aspect had been performed (Tables 3–5). The ratings revealed that patients value being taken seriously and that their health care providers are friendly and listen to their concerns. Patients considered most of these aspects to be performed during their SMA.

### Parents' perspectives on performance

According to parents (25%), health care providers have supervised their children sufficiently during SMAs. The other parents (75%) did not comment on the performance by providers during SMAs. For the majority of parents (75%), it is important that a diabetes nurse and a pediatrician are present during SMAs;

**Table 3** Percentage of patients that value different consultation aspects (n = 52)

For the forthcoming shared medical appointment, it is important that the health care provider...	Important <sup>a</sup>		Not important <sup>b</sup>	
	n	%	n	%
Examines me	33	63.4	18	36.6
Is friendly	49	94.2	3	5.8
Takes me seriously	51	98.1	1	1.9
Listens to what I have to say	51	98.1	1	1.9
Is open to me	46	90.2	4	7.9
Has enough time for me	48	92.3	4	7.7
Is empathic to me	34	66.6	17	33.3
Gives me enough attention	42	80.8	9	17.3
Gives good information	48	92.3	4	7.6

**Notes:** <sup>a</sup>Aspects rated as 'very important' or 'important' are indicated as important; <sup>b</sup>aspects rated as 'somewhat important' and 'not important' are indicated as not important.

children can relate more to their diabetes nurse, and a pediatrician can answer medical questions. However, a dietician, a child psychologist, and a podiatrist may need to be present to answer more diverse questions, according to 25% of the parents.

## Experiences with SMAs

### Experiences of health care providers and patients

All but one health care provider indicated satisfaction with the SMAs ( $M = 3.83$ ,  $SD = 0.62$ ). Most patients ( $n = 45$ ) appeared to be satisfied with the SMA directly after having attended the SMA ( $M = 4.22$ ,  $SD = 0.81$ ). Their satisfaction tended to decrease after 3 months ( $M = 3.76$ ,  $SD = 1.15$ ;  $t(28) = 1.94$ ,  $P = 0.06$ ). Most patients (87%) indicated they had learned from fellow patients, fellow patients helped them to understand the information better (75%), and they learned to ask questions (42%) (Table 6).

**Table 4** Percentage of patients that consider consultation aspects performed (n = 46)

During the shared medical appointment, the health care provider...	Performed <sup>a</sup>		Not performed <sup>b</sup>	
	n	%	n	%
Examined me	24	52.1	18	39.1
Was friendly	46	100.0	0	0.0
Took me seriously	46	100.0	0	0.0
Listened to what I had to say	44	95.6	0	0.0
Was open to me	43	93.5	1	2.2
Had enough time for me	45	97.8	0	0.0
Was empathic to me	36	78.2	4	8.6
Gave me enough attention	45	97.9	0	0.0
Gave good information	38	82.6	1	2.2

**Notes:** <sup>a</sup>Aspects rated as 'yes' or 'actually yes' are indicated as performed; <sup>b</sup>aspects rated as 'not really' and 'no' are indicated as not performed.

**Table 5** Mean scores of important and performed behavioral aspects of health care providers evaluated by patients

The health care provider	Important* (n = 52) M (SD)	Performed* (n = 46) M (SD)
Examines me	2.67 (0.99)	2.43 (1.60)
Is friendly	3.52 (0.61)	3.98 (0.15)
Takes me seriously	3.67 (0.51)	3.93 (0.25)
Listens to what I have to say	3.56 (0.54)	3.78 (0.84)
Is open to me	3.25 (0.82)	3.76 (0.87)
Has enough time for me	3.23 (0.58)	3.85 (0.63)
Is empathic to me	2.90 (0.99)	3.11 (1.43)
Gives me enough attention	3.12 (0.83)	3.89 (0.61)
Gives good information	3.46 (0.75)	3.26 (1.45)

**Note:** \*A score '1' indicates not important/performed, a score '4' indicates very (much) important/performed.

**Abbreviations:** M, mean; SD, standard deviation.

## Experiences of parents

According to parents (62.5%), their children enjoy attending SMAs to meet other patients with type 1 diabetes. During an SMA, patients can discuss each other's diabetes-related problems, learn from their peers, and offer support. Parents (25%) indicated that peers probably enhance patients' knowledge about diabetes. As one parent said: *"You never know exactly how everything is, unless you have diabetes yourself"*. Parents differed in opinion about the number and duration of SMAs. Some (25%) opted for more frequent SMAs, for example once a month, others (37.5%) preferred only one SMA a year. SMAs were not experienced positively by all. One parent indicated that he/she was not informed properly about the purpose of SMAs, which resulted in incorrect expectations. SMAs were also valued negatively by some parents (25%) when patients are present who do not want to participate or when patients do not interact with each other. For parents (62.5%), SMAs should preferably be attended by patients with similar ages, attitudes, problems,

and types of insulin treatment. Differences between patients are not considered beneficial. One parent stated: *"There were children aged between 6 and 12 years. This resulted in a discussion of general topics while the specific problems related to my child's age were not discussed"*. According to another parent, age differences result in less interaction, because younger children seem too much impressed by the stories of adolescents and to not gain any knowledge. Also, due to the differences in types of insulin treatments among the participants in one SMA, several aspects of insulin treatment were left out of the discussion.

## Discussion and conclusion

The aim of this study was to examine the perspectives and experiences of health care providers, patients, and parents with SMAs for children and adolescents with type 1 diabetes. The reasons for participating in SMAs differ between the three samples. Health care providers foremost appear to have work-related reasons for conducting SMAs, whereas patients attend SMAs to share experiences with peers and to learn from each other. The parents also value such peer relationships and recommend parents not to accompany their children to an SMA. However, in most SMAs examined as part of this study, parents did accompany their children.

According to the health care providers, more information is discussed during SMAs. This viewpoint replicates that of a smaller group of health care providers participating in the previous study by NIVEL that examined differences in diabetes-related topics being discussed during SMAs and individual visits.<sup>21</sup> The patients did value the extra information about lifestyle, a topic considered especially important to discuss during SMAs.<sup>32,33</sup> However, 46.7% of the patients thought that the amount of information provided about lifestyle was equal to that in an individual visit. Overall, the

**Table 6** Patients' ratings of statements about SMAs

	M (SD)	Completely agree %	Agree %	Neutral %	Disagree %	Completely disagree %
I have learned from fellow patients and their questions	3.98 (0.75)	17.4	69.6	8.7	2.2	2.2
The presence of fellow patients helped me to understand the information better	3.75 (0.94)	15.9	59.1	11.4	11.4	2.3
The presence of fellow patients helped me to ask questions	3.11 (1.11)	8.9	33.3	24.4	26.7	6.7
I have experienced support from fellow patients	3.38 (1.13)	11.1	46.7	20.0	13.3	8.9
I have offered support to fellow patients	3.36 (1.04)	9.1	45.5	22.7	18.2	4.5
I liked the presence of several healthcare providers during SMA	3.67 (0.91)	11.1	57.8	22.2	4.4	4.4
The extra time investment for SMA was worthwhile	3.82 (0.98)	20.0	57.8	11.1	6.7	4.4
I would recommend others to participate into SMAs	3.78 (1.04)	24.4	44.4	20.0	6.7	4.4
For the next appointment, I would choose for SMA again	3.55 (1.28)	25.0	36.4	18.2	9.1	11.4

**Abbreviations:** M, mean; SD, standard deviation; SMAs, shared medical appointments.

children and adolescents were satisfied about the health care providers' performance during the SMA.

Although health care providers and patients were satisfied with SMAs, patients did show a slight decrease in satisfaction with SMAs after 3 months. Post-hoc analyses ruled out the possibility that only dissatisfied patients filled in the 3-month questionnaire. In addition, the added value of SMA remains apparent as most patients would recommend SMAs to others and would choose SMA for their next appointment. Parents differed in their satisfaction with SMAs. Some were negative because they had expected something else, others were positive because their child enjoyed attending SMAs. The time investment for SMA was no barrier for patients, but some parents were more reluctant about this.

## Limitations and recommendations

This study applied a data-sources triangulation of perspectives from health care providers, patients and parents using two different data-collection methodologies.<sup>24</sup> The latter made it somewhat difficult to compare parents' reactions from the OFG with the items of the questionnaires completed by the health care providers and the patients, even though both methods did assess the same topics. However, the OFG gave a more comprehensive view of the experiences of parents as they had the ability to explain certain perspectives, whereas health care providers and patients could only rate their perspectives on the questionnaires.

Another limitation of this study is the examination of participants' perspectives with only one SMA. More experiences with SMAs may lead to different results. It could also help to investigate health-related outcomes (eg, HbA<sub>1c</sub> levels) of SMAs in children and adolescents with type 1 diabetes as only few studies are known that investigate pediatric SMAs in diabetes care.<sup>20,21</sup>

Furthermore, the sample of SMAs, patients, parents, and providers was rather small and therefore not representative. Further research is necessary among a larger and representative sample, and participants who attended multiple SMAs.

Parents indicated that SMAs should be attended by patients with similar ages, treatments and problems. Group visits have indeed shown to be more effective with older adolescents than with younger ones.<sup>20</sup> Parents also indicated that their own presence might have resulted in less interaction and less disclosure of experienced problems among the children. This loss of the child's perspective when parents are present is also reflected in a study by Dedding.<sup>8</sup>

Future studies should therefore examine the effects of differences between patients, the presence of parents, and that of different health care providers. This may result in a standardized format for SMAs that is tailored to patients' age and other patient characteristics or needs.

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## Disclosure

The authors report no conflicts of interest in this work.

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## Appendix I

### What are (protocolized<sup>11</sup>) shared medical appointments?

Shared medical appointments (SMAs) were first introduced in the United States in 1996<sup>17</sup> and later in the Netherlands.<sup>11</sup> During an SMA between five to eight (chronically ill) patients attend their physician simultaneously to discuss (their) health care and related issues during a visit of approximately 90 minutes. The physician approached the patients one-by-one in the presence of the rest of the group, thereby providing the same care as during a traditional individual appointment. The physician is assisted by a professional group leader (moderator) and a medical assistant or nurse practitioner. The formation of this multidisciplinary care team depends on the patient's illness.<sup>11</sup>

The group setting is expected to stimulate active interaction by asking questions and allowing for interruptions to take place.<sup>17</sup> It is the role of the moderator to explain the procedure of the SMA, stress confidentiality, invite participants to respond, and let everybody speak and have their turn. In case of SMAs in diabetes, a medical assistant or nurse practitioner is present to measure weight, height, and glycosylated hemoglobin levels, and to register relevant symptoms and make follow-up appointments.<sup>14</sup> The agenda of an SMA is not decided beforehand. The moderator is instructed to highlight shared topics that arise when individual patients are approached by the physician one by one.

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